

## CLAIMS

1. A method for manufacturing artificial cartilage, characterized in that undifferentiated mesenchymal cells are cultured in a cartilage differentiation inducing medium, and the cells are irradiated with ultrasound.
2. A method for manufacturing artificial cartilage according to Claim 1, characterized in that the ultrasound has a frequency of 20 kHz to 10 MHz, a burst width of 10  $\mu$  sec to 1 msec, a repetition rate of 5 Hz to 10 kHz, and an ultrasound intensity of 5-120 mW/cm<sup>2</sup>.
3. A method for manufacturing artificial cartilage according to Claim 2, characterized in that the ultrasound has a frequency of 1.5 MHz, a burst width of 200  $\mu$  sec, a repetition rate of 1.0 kHz, and an ultrasound intensity of 5-120 mW/cm<sup>2</sup>.
4. An artificial cartilage that has been produced by ultrasound irradiation of undifferentiated mesenchymal cells under cultivation in a cartilage differentiation inducing medium.
5. An artificial cartilage that has been produced by irradiating undifferentiated mesenchymal cells under cultivation in a cartilage differentiation inducing medium with ultrasound having a frequency of 20 kHz to 10 MHz, a burst width of 10  $\mu$  sec to 1 msec, a repetition rate of 5 Hz to 10 kHz, and an ultrasound intensity of 5-120 mW/cm<sup>2</sup>.
6. A artificial cartilage according to Claim 4, characterized in that the ultrasound has a frequency of 1.5 MHz, a burst width of 200  $\mu$  sec, a repetition rate of 1.0 kHz, and an ultrasound intensity of 5-120 mW/cm<sup>2</sup>.
7. An apparatus for manufacturing artificial cartilages comprising a culture vessel containing cultured undifferentiated mesenchymal cells, an ultrasound transducer for applying ultrasound to the vessel, a control means for controlling the ultrasound, and a holding water-tank for installing the ultrasound transducer and the culture vessel in the holding water-tank in such a state that they are in contact with each other.
8. An apparatus for manufacturing the artificial cartilage according to Claim 7, characterized in that the control means is a means for

controlling the ultrasound transducer so that ultrasound pulse is output from it.

5 9. An apparatus for manufacturing the artificial cartilage according to Claim 8, characterized in that the ultrasound has a frequency of 20 kHz to 10 MHz, a burst width of 10  $\mu$  sec to 1 msec, a repetition rate of 5 Hz to 10 kHz, and an ultrasound intensity of 5-120 mW/cm<sup>2</sup>.

10 10. A method for accelerating cartilage differentiation induction, characterized in that undifferentiated mesenchymal cells are irradiated with ultrasound.

11. A method for accelerating cartilage differentiation induction according to Claim 10, characterized in that the ultrasound has a frequency of 20 kHz to 10 MHz, a burst width of 10  $\mu$  sec to 1 msec, a repetition rate of 5 Hz to 10 kHz, and an ultrasound intensity of 5-120 mW/cm<sup>2</sup>.

15 12. A method for accelerating cartilage differentiation induction according to Claim 10, characterized in that the ultrasound has a frequency of 1.5 MHz, a burst width of 200  $\mu$  sec, a repetition rate of 1.0 kHz, and an ultrasound intensity of 5-120 mW/cm<sup>2</sup>.